Chemistry Report for Case # P-15-0487

General

Submitter: Daewoo International USA Corp

Contact: John Massingale **Contact Telephone No.:** (561) 578-8110

TS No.: KCNT01

Chemist: Fehir, Rick **Contractor Support:** Y

PV Init (kg/yr): [redacted] **PV Max (kg/yr):** [redacted]

Binding Option: ☐ **Exposure-Based Review:** ☑

Manufacture: ☐ **Import:** ☑

CAS Number: None

Chemical Name: Multi-walled carbon nanotubes

Trade Name:K-Nanos-100P Grade; K-Nanos-100T Grade

IES Order: None

Generic Name: Multi-walled carbon nanotubes

Chemical Structure

Physical Chemical Properties

Molecular Formula:C	**Molecular Weight:**100000.00
% < 500:	**% < 1000:**
MP:	**MP Estimate:**
BP:	**BP Pressure:**
BP Estimate:	
VP (Torr):	**VP Estimate (Torr):**<0.000001
Water Solubility (g/L):	**Water Soluble Estimate (g/L):**<0.000001
Log P:	**Log P Estimate:**
Physical State — Neat: Solid	**Physical State — Manuf:**NK: Import

Physical State — Processing: Solid: [redacted] PMN material in formulation
Physical State — End Use: Solid

Additional Chemical Info

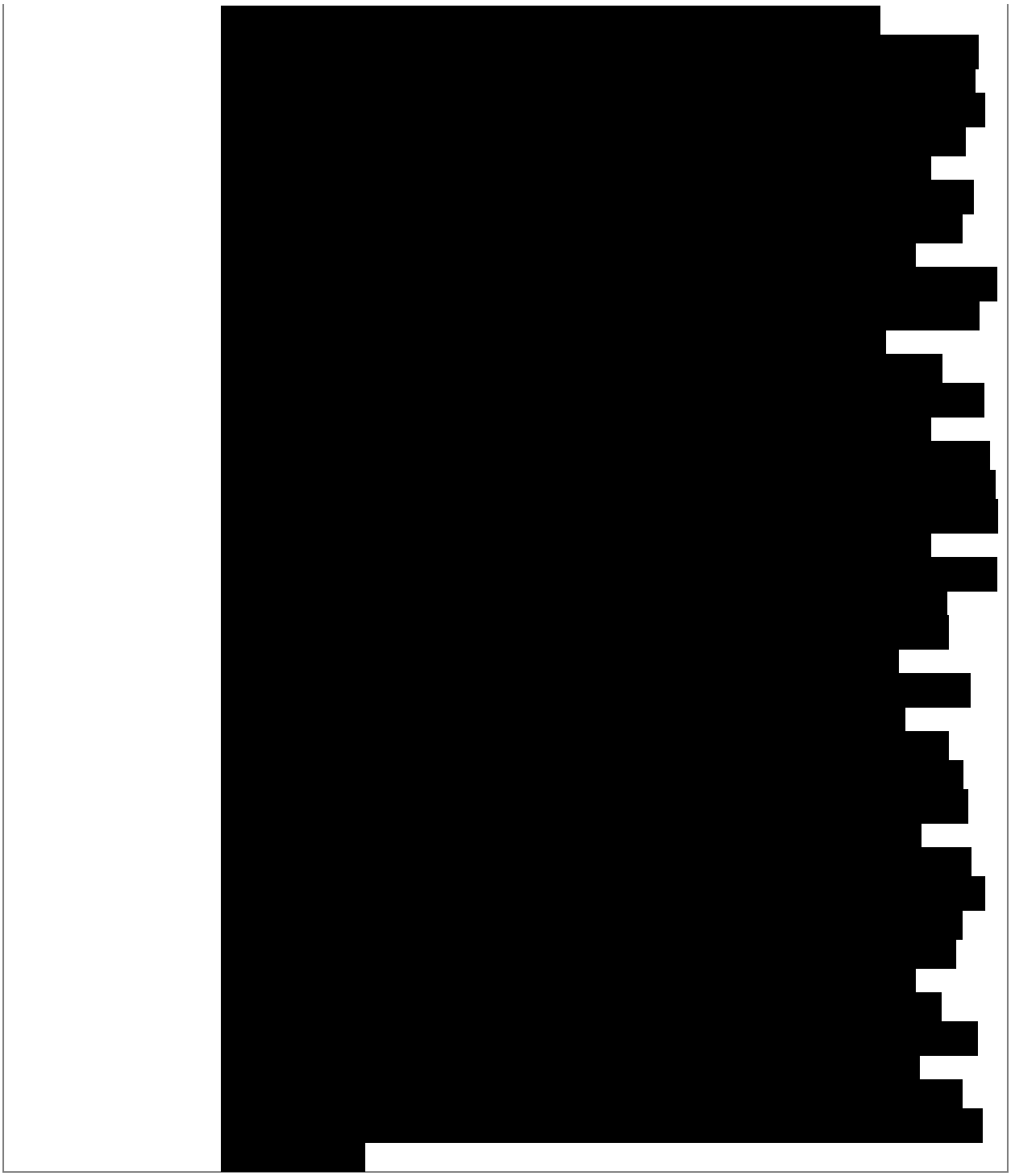
The molecular weight is variable and depends on the size of the nanotube. It is estimated to be >1,000,000 g/mole. The combined production volume for the consolidated set is INIT: [redacted] kg/yr; MAX: [redacted] kg/yr. Submitted Properties: Agglomerates as bundles; Number of Walls = 5-20; CNT Diameter = 8-30 nm; CNT Length = 1-20 µm, CNT Aspect Ratio > 200; Bundle Length = 10-50 µm; Bundle Aspect Ratio = 0.7-50; Wall Ends = Closed; Purity > 93%; Catalyst Particle Size = 1-150 µm; WS = Insoluble; Density = 0.015-0.030 g/cc (Powder), 0.060-0.140 g/cc (Pellet); Particle Size (6 runs): D10 = 10.00-11.56 µm, D50 = 33.35-39.52 µm, D90 = 101.97-134.54 µm. Estimated Properties: VP < 0.000001 torr (High MW); WS < 0.000001 g/L (High MW).

Uses

Consumer Use? No

Use: Additive for electro-static discharge (ESD) in electronic devices, electronics, and materials ([redacted] additive for weight reduction in materials ([redacted] additive to improve mechanical properties or electrical conductivities ([redacted] a heat-generating element in heating devices and materials ([redacted] additive for heat transfer and thermal emissions in electronic devices and materials ([redacted] semi-conductor, conductive, or resistive element in electronic circuitry and devices ([redacted] additive to improve conductivity in electronic circuitry, energy storage systems, and devices ([redacted] electron emitter for lighting and x-ray sources ([redacted] additive for electromagnetic interface (EMI) shielding in electronic devices ([redacted] additive for electrodes in electronic materials and electronic devices ([redacted] catalyst support in chemical manufacturing ([redacted] coating additive to improve corrosion resistance or conductive properties ([redacted] additive for fibers in structural and electrical applications ([redacted] additive for fibers in fabrics and textiles ([redacted] filter additive to remove nanoscale materials ([redacted] semi-conducting compounding additive for high-voltage cable ([redacted] and additive for super-hydrophobicity ([redacted] Consoildated Set: P-15-487, P-15-488, P-15-489, P-15-490, adn P-15-491.

Other Uses: [redacted]



Reaction Description

The PMN material is imported, and only a very brief manufacturing process diagram was provided. The PMN material is manufactured [redacted]

Pollution Prevention Analysis(P2 Analysis:)

P2 Claim: The new chemical substance is expected to offer the following Pollution Prevention benefits: (1) The new chemical substances when used as an additive in materials increase the wear and life of the material through the reduction of friction and increase in material strength. This results in extended material and product life, as well as reduced energy consumption. (2) The new chemical substances may be used to enhance the conductivity of electronic devices. This is expected to result in reduced energy consumption and improved energy efficiency and output.

Analogs

[redacted]

Comments/Telephone Log

Artifact	Update/Upload Time
[redacted]	[redacted]